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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/087,858 | 03/05/2002 | Go Inoue | Q68703 | 8358 |

23373 7590 05/21/2003
SUGHRUE MION, PLLC
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WASHINGTON, DC 20037

EXAMINER

SHIPPEN, MICHAEL L

ART UNIT PAPER NUMBER

1621

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|---------------------------------------|-------------------------------------|
| Office Action Summary | Applicant(s) 10/087,858 | Applicant(s) INOUE ET AL. |
| | Examiner MICHAEL L. SHIPPEN | Art Unit 1621 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103¹

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 5,670,702 and USP 5,981,818 in view of EP 68,785. USP 5,670,702 and USP 5,981,818 teach that methyl t-butyl ether may be decomposed to isobutylene and methanol. The isobutylene is oxidized and subsequently esterified with methanol. USP 5,670,702 differs from the claimed process in that the ether decomposition process is not actually exemplified, note line 60 of column 3 to line 12 of column 4 and Example 2. USP 5,981,818 differs from the claimed process in that the methanol obtained in the decomposition of the ether is not identified as the methanol used in the esterification step, note lines 49-66 of column 22. EP 68,785 teaches the ether decomposition steps and the isobutylene and methanol recovery. The EP specifically states the products are suitable for used in the preparation of methacrylic acid, note the last full paragraph of page 1. It is considered obvious for one to use the decomposition method and product recovery method of the EP in the process of the USP's since one would usually use known methods to carry out necessary process steps rather than use unknown methods. As to USP 5,918,818 silence regarding the source of the methanol used in

¹ The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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the esterification, it would be an obvious economical and environmental expedient to the use the methanol generated in the integrated process. As to the claims that recite a specific purity of the methanol, it would be obvious that a more pure methanol could be used in the prior art process. One would be motivated to use a more pure reactant since contaminants in a reactant would be carried forward into the product. It would be readily apparent to one of ordinary skill in the art that a less contaminated product can be obtained by the use of a more pure starting material.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over USP 5,670,702 and USP 5,981,818 in view of EP 68,785. The references are applied as above. The oxidation reactors and esterification reactors are specifically taught by the USP's. It follows that the apparatus to carry out an obvious process is likewise obvious. Inherent in the prior art process is the necessary use of decomposition reactor, means for separating the isobutylene and means for recovering the methanol to obtain the reactants to be used. It would be obvious the apparatus of the EP could be used to this end.

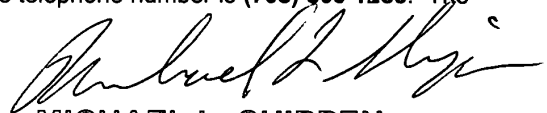
Conclusion

The remaining references are cited as of interest.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Michael L. Shippen** whose telephone number is **(703) 308-4635**. The Examiner's normal tour of duty is 7:30 AM to 4:00 PM. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is **(703) 308-1235**. The official group FAX machine number is **(703) 308-4556**.

MShippen

May 18, 2003



MICHAEL L. SHIPPEN
PRIMARY EXAMINER
ART UNIT 1621